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10/810,026

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Peter R. Munguia

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EXAMINER

DALEY, CHRISTOPHER ANTHONY

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/810,026

**Applicant(s)**

MUNGUIA, PETER R.

**Examiner**

CHRISTOPHER A. DALEY

**Art Unit**

2111

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 8, 10, 12-15, 17, 18, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 5-7, 8, 10, 12-15, 17-18, 22-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-5, 7, 8,10, 12-15, 17, 18 and 22-23 are presented for examination.
- 2.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 10-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 6,185,692 granted to Wolford in view of Lee et al (US5815734) hereinafter Lee in further view of Culbert et al (US6820209) hereinafter Culbert.
5. As per claim 1, the reference of Wolford teaches an apparatus comprising:  
A variable speed bus (Fig. 1, element 20) & col. 3, lines 6-19; a first unit coupled to the variable speed bus (Fig. 1); a second unit coupled to the variable speed bus (Fig. 1); and "an arbitration and a bus clock control unit" in col. 3, lines 6-19, 37-42; col. 4, lines 6-12, 34-41 and 62-66.

The reference of Wolford does not expressly show "change of clock frequency based on access request rate". However, the above feature was well known in the data processing art at the time the invention was made as evidenced by Lee. The reference of Lee teaches the feature in col. 5, lines 31-59. Figure 2 of lee illustrates a bus interface unit that upon request, enable a higher frequency bus operation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Wolford to implement the above feature of Lee to obtain the claimed invention because this is straightforward possibility known in the art from which one of ordinary skill in the art at the time the invention was made would select in accordance with circumstances without the exercise of inventive skill so as to allow the system of Wolford to be compatible with a widely used standard and to allow the system to take advantage of the many benefits provided by the feature such as improved performance while conserving power by reducing power consumption of the system, COL. 3, lines 1 – 12.

Wolford as modified by Lee does not explicitly disclose wherein the arbitration and bus clock control unit to track a rate of request of the first and second units to access the variable speed bus, the arbitration and the bus clock control unit is further to instruct a clock throttling logic to adjust a clock frequency associated with the variable speed bus according to bandwidth requirements of the first and second units based on the rate of the request.

However, Culbert teaches wherein the arbitration and bus clock control unit to track a rate of request of the first and second units to access the variable speed bus,

the arbitration and the bus clock control unit is further to instruct a clock throttling logic to adjust a clock frequency associated with the variable speed bus according to bandwidth requirements of the first and second units based on the rate of the request as illustrated in Figure 2. Said figure illustrates a clock controller 218, and arbitration unit 208. Arbitration of access to the local memory 202 takes place. This arbitration is between the 2D and 3D graphics engine. The monitors signal status, indicate which clock, both ck1, and ck2 should be used, COL. 6, lines 44 – 67.

It would have been obvious to one of ordinary skill in the art at the time of the invention to manage the power consumption of the system, COL. 2, lines 1 – 10. One of ordinary skill in the art would have been motivated to use the control system of Culbert in the system of Wolford/Lee to manage the power consumption of the system, COL. 2, lines 1 - 10.

6. As per claim 2, the reference of Wolford teaches that the first unit is a processing unit (Fig. 1, CPU 12).
7. As per claim 3, the reference of Wolford teaches that the second unit is a video processing unit (Fig. 1, graphics 21).
8. As per claim 4, the reference of Wolford teaches that the first unit is a hard disk drive controller unit (Fig. 1, SCSI 18).
9. As per claim 10, the limitations of the claim are similar to claim 1. Therefore, the claim is rejected for similar reasons as discussed in the rejection of claim 1 above.

As per claim 11, the reference of Wolford teaches the added limitation of the claim in col. 3, lines 6-19, 37-42; col. 4, lines 6-12, 34-41 and 62-66.

10. As per claims 12-14, the claims are rejected for the same reasons as discussed in the rejection of claims 2-4 respectively.

11. Claims 22-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 6,185,692 granted to Wolford in view of Lee, and further in view of US Patent Application Publication US 20050044442 (Barr et al.).

12. As per claim 22, the limitations of the claims are rejected for similar reasons as discussed in the rejection of claim 11 above with the exception of the added limitation, "change of clock frequency based on bandwidth requirement". However, one of ordinary skill in the art at the time the invention was made would have recognized that different types of devices might have different bandwidth requirements. The reference of Barr et al. teaches a system for adjusting a variable speed bus (PCI bus) depending on bandwidth requirements of the attached devices [para. 0053]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wolford and Barr et al. to obtain the claimed invention because they both teach a system for adjusting a variable speed bus.

13. As per claim 23, the reference of Wolford teaches the variable speed bus, the first unit, the second unit, the clock throttling logic and the arbitration and clock control unit are located on a single semiconductor die in Fig. 1.

14. Claims 5, 7, 8, 15, 17 and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 6,185,692 granted to Wolford in view of Lee, and in further view of Culbert, and further in view of common knowledge in the data processing art at the time of the invention with and without the patent granted Keeley (US5844794).

15. As per dependent claims 5, 7 and 8, the claims are rejected for the same reasons as discussed in the rejection of claim 1 with the exception of claiming various alternatively useable units for isochronous data transfer. The examiner takes Official Notice that the claimed features were well known in the data processing art at the time the invention was made with and without the patent granted Keeley (US5844794) which teaches data processing of isochronous traffic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Wolford in view of Lee to implement the above features to obtain the claimed invention because these are straightforward possibilities from which one of ordinary skill in the art at the time the invention was made would select in accordance with circumstances without the exercise of inventive skill so as to allow the system of Wolford in view of Lee to be compatible with a widely used standard and to allow the system to take advantage of the many benefits provided by those features.

16. As per claims 15, 17 and 18, the claims are rejected for the same reasons as discussed in the rejection of claims 5, 7 and 8 respectively.

***Response to Arguments***

17. Applicant's arguments with respect to claims 1, and 10 have been considered but are moot in view of the new ground(s) of rejection.

With regard to claims 1, and 10, Applicant(s) have argued that prior art does not teach" wherein the arbitration and bus clock control unit to track a rate of request of the first and second units to access the variable speed bus, the arbitration and the bus clock control unit is further to instruct a clock throttling logic to adjust a clock frequency associated with the variable speed bus according to bandwidth requirements of the first and second units based on the rate of the request.

In response to the Applicant's argument, the Examiner points to the teaching of Culbert. Culbert teaches wherein the arbitration and bus clock control unit to track a rate of request of the first and second units to access the variable speed bus, the arbitration and the bus clock control unit is further to instruct a clock throttling logic to adjust a clock frequency associated with the variable speed bus according to bandwidth requirements of the first and second units based on the rate of the request as illustrated in Figure 2. Said figure illustrates a clock controller 218, and arbitration unit 208. Arbitration of access to the local memory 202 takes place. This arbitration is between the 2D and 3D graphics engine. The monitors signal status, indicate which clock, both ck1, and ck2 should be used, COL. 6, lines 44 – 67. Therefore, the examiner cannot allow the claim, since the prior art discloses the element.



***Conclusion***

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **CHRISTOPHER A. DALEY** whose telephone number is (571)272-3625. The examiner can normally be reached on 9 am. - 4p m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571 272 3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher A Daley/  
Examiner, Art Unit 2111

/Khanh Dang/  
Primary Examiner, Art Unit 2111